WDFW Drought Contingency Planning
GRAY WOLF FISH PASSAGE PROJECT
Project Date: 8/21/01

CHECKLIST:

Project: **Construct temporary passage around a low flow blockage to adult pink salmon on the Gray Wolf River at River Mile 2.2**

Access: **By foot via Gray Wolf Trail (2 miles), then downstream ½ mile from "Two Mile Camp", requires 3 wet crossings, 1-way helicopter delivery of materials**

Figure 1 Impassable Cascades at RM 2.2

Construction Date: August 21, 2001

Permits:
State of Washington - HPA – Drought Contingency HPA plus verbal ok from Chris Byrnes - WDFW (Byrnes to Lloyd Phinney of WDFW 8/16/01)
USFWS – Bull Trout - ok by John Gottenberg under Section 6 (fish rescue) – verbal to Bill Freymond WDFW on 8/17/01
USFWS/ESA – Spotted Owls and Marbled Murrelets, "may affect, not likely to adversely affect" finding by Bill Vogel to Steve Keller (WDFW) on 8/20/01 one-way helicopter use for delivering supplies, route to avoid/minimize flight path over known habitat, pick-up zone to avoid/minimize known habitat.
NMFS/ESA – Chinook Salmon – ok per Section 6 (fish rescue) Matt Longenbaugh to Bill Freymond (WDFW) 8/17/01

US Forest Service (landowner) - written ok in prep 8/20/01 verbal ok per conference call w/Kathy O'Halleren, Mark McHenry to Steve Keller 8/20/01
Volunteer Registration (Brandon Phinney) – completed 8/21/01 6 am

Crew:

Steve Keller ____	Lloyd Phinney ____	Brandon Phinney ____
Dick Allen _____	Ray Johnson ____	Randy Cooper ____
Bill Freymond____	Ken Gilliam _____	Mike Gross _____
Dave Nettnin _____	Chad Stussy _____	Bob Zeigler _____
Pad Smith _____	Don Ponder _____	Ken Corwin _____

Vehicles/Drivers/Passengers:

Nettnin: P/U from Forks w/sand bags, tools (Nettnin delivers materials to Dungeness Hatchery, Phinney (in chopper) assists loading, returns to hatchery, then Nettnin/Phinney back to trail head)
Keller:Engineering van (Keller, L. Phinney (return trip), Brandon Phinney, Allen, Stussy, Gross, Zeigler)
Ponder: Engineering SUV w/Corwin, Smith)
Ray Johnson: POV w/Gilliam to bridge
Freymond: POV Bill and Randy Cooper to bridge, or Cooper in separate vehicle
Olympic Air – fly to Dungeness Hatchery w/Phinney, pick up supplies - deliver to drop zone on Gray Wolf – Phinney returns to hatchery for ride w/Nettnin to trail head.

Equipment:

Sand Bags (200) ____ shovels (5) _____ rope 2x50' _____safety harness (1) ____
First Aid Kit _____, DNR Radio _____Water Purifier _____Aerial Photos _____
Sling for chopper_____ Pry Bars (4) Pea Gun _____ 100' tape ____ Backpacks ____
Flashlights _____ Life Jackets ____ Camcorder _____ Digital Camera _____
Gloves _____

Crew Members: Lunch, TP, water/sport drink, hiking boots, hip boots w/felts, study walking stick, raingear, flashlight, daypack (or if carry-in: backpack)

Staging Times/Places

1. Crew to stage at Gray Wolf River Bridge at **9:00 am Tuesday August 21**
   Nettnin to deliver supplies: if helicopter at Dungeness landing by 9:30 am, or bridge at 9:00 am if carry in – load backpacks

2. Arrive trail head at 9:30

3. Arrive site 11:30-12:00 (head count)

4. Construct Fishway

5. Depart construction site – no later than 5 pm – (head count)
   Arrive Trail head – no later than 7 pm (head count)

6. Return to staging area at Gray Wolf Bridge 7-7:30pm. Depart.

COMPLETION REPORT:

This emergency project was a huge success and KUDOs to all involved. We were able to provide complete passage around this obstruction for thousands of adult pink salmon and passed several adult chinook salmon as well. Failure to provide passage would have had severe negative consequences in terms of lost production of a SASSI-listed Depressed pink salmon stock.

We used a mix of fund sources for this project and estimate the total construction costs to be about $8200. Approximate costs are as follows:

Drought Administration (salaries) -	$1500
Drought Emergency Project Code - (salaries/travel/G&S)	$2400
Other WDFW Codes -	$4300
	$8200

CHRONOLOGY OF EVENTS:

August 15, 2001

Steve Keller, WDFW Drought Coordinator, received notification of a near-total blockage to returning adult pink salmon on the Gray Wolf River, a tributary of the Dungeness River near Sequim. According to Ray Johnson, a WDFW spawning ground surveyor, a two-step cascade at River Mile 2.2 was blocking virtually all the fish from the upper reaches of their spawning grounds. Ray estimated about 700 fish were within a quarter of a mile downstream of the cascade, but counted only five fish in the spawning grounds above the cascade. Ray, who has surveyed the river since the 1960s, knew that at higher flows the cascade normally was passable, but apparently not at current drought-affected flows.

August 16

Lloyd Phinney, Regional Drought Coordinator, and Keller arranged to visit the site with Ray the next day. Also to be along were Dave Nettnin, a WDFW scientific technician and habitat work crew supervisor, and Don Ponder, a WDFW environmental engineer. We were hopeful that we could install temporary aluminum fishways on both cascades. Since

the site was remote - in the Olympic National Forest just downstream from the Buckhorn Wilderness - we were going to have to hike in about two miles and then wade downstream about 1/2 mile to the site. We also thought we would probably have to have the portable fishways brought to the project site by helicopter.

The remainder of the day was spent alerting permitting agencies, making Forest Service access contacts, locating a helicopter and locating the portable fishways.

August 17

Our inspection team hiked into the site (see figure 1 above) and determined that installing fishways was impractical, given the amount of water concentrated through the cascades. Even at drought conditions, water flows would have made installation of the fishways unsafe and impractical, given that all work would have to be done by hand.

We began looking for alternatives. With a bit of investigation, we were able to find a route that wouldn't require fishways. After studying a "portal" between the two largest rocks at the site, Don Ponder suggested that passage could be provided through it and down the existing overflow channel. The rest of the group concurred. We went to work removing rocks, gravel and woody debris from the portal and establishing a flow channel of sufficient depth and velocity for pink salmon to negotiate. We then identified a bypass route that, with a combination of sand-bagging and cobble rearrangement, would provide passage completely around both steps of the cascade(see Figures 2 and 3).

Figure 2. Assessing the situation - portal between the boulders in center, and overflow channel to the left where water would be routed to by-pass cascades.

Figure 3. Portal that allowed water to flow between two largest boulders on the left of the cascade.

After hiking out and returning to our vehicles, we worked out the preliminary project details and assignments. Ray estimated that about 4,000 adult pink salmon were now within a quarter mile downstream of the project and that spawning could begin within the following week, so it was critical to mount a project quickly.

We determined which permits were required and considered the logistics of the work. Since the site was so remote and considerable supplies and equipment would be needed, we arranged for a helicopter to bring in the materials. We selected Aug. 21 as the work date and determined which staff could be available to assist in the bypass construction. We stopped by the US Forest Service Quilcene Ranger District to describe the proposed project to Mark McHenry, district fish biologist. Mark gave his tentative approval, but advised us that the decision to approve the project would have to be made at a higher level. Of particular concern to him was the possibility that helicopter might disturb northern spotted owls and marbled murrelets, both listed for federal protection under the Endangered Species Act (ESA) and both using upland habitat adjacent to the project site.

August 20

Phinney and Keller contracted for a helicopter out of Shelton, arranged staff for the project and met with Forest Service and U.S. Fish and Wildlife Service (USFWS) wildlife biologists to obtain permission for use of the helicopter. The project also was discussed and approved WDFW habitat biologists. Because bull trout and chinook salmon in the area are ESA- listed species, the project was also reviewed and approved

by USFWS fish biologists monitoring bull trout impacts and National Marine Fisheries Service fish biologists monitoring chinook salmon impacts.

Ray called in the evening to report the number of fish had grown to nearly 8,000 below the cascade and that he had observed just seven fish above.

Figure 4. Several hundred pink salmon pooled below the cascades (dark gray shapes in the upper left).

August 21

Ironically, an unusually heavy rainstorm descended as we left Olympia for the project site, giving me pause as to whether I should let nature take its course or proceed with the project. But since the Gray Wolf River lies within the rain shadow of the Olympic Mountains, we decided that we could not gamble on whether the rain would sufficiently increase streamflows to make the cascade passable. So 15 of us, including several salmon biologists, scientific technicians, and engineers headed to the Gray Wolf River bridge to rendezvous, load our gear, proceed to the trailhead and head down the trail to the project. It rained and blew briskly all the way from Olympia to Discovery Bay, but as we headed to Sequim Bay and the turn-off, we could see a several-thousand-foot cloud ceiling with 5- to 6-miles of visibility up the Gray Wolf River valley.

We called to instruct the helicopter pilot to take off and pick up supplies that had been staged at our Dungeness Salmon Hatchery. But despite all our earlier efforts to obtain clearance for the chopper, it was grounded by the weather at Shelton.

So we re-routed the supplies to the trailhead, donned the backpacks and carried our tools and materials to the site. We arrived on site close to the appointed time and began working. One crew began filling sandbags with talus from a slope adjacent to the cascades, another worked to provide flows through a log jam above the upper cascade, and the remaining crew routed water through the portal down to a point below the lower cascade. In a short time we had flows established through the log jam and through the portal. What remained was to route water to a spot below the cascade in a channel of sufficient depth and low enough velocity to pass the fish. With the bypass nearing completion, we waited for a reaction from the fish. Ray suggested that everyone stop work and get out of the water.

Figure 5. Watching for the fish to come.

Within 10 minutes after everyone left the stream the first fish began to ascend the by-pass and within 20 minutes the first fish cleared the portal on its way upstream. We dubbed the portal "Ponder's Pass" to honor Don Ponder who first suggested the remedy. After a few more minutes, a dozen or more made the passage. High fives all around! Having removed the obstacle, all that remained was some fine-tuning and hiking out, mission accomplished.

Figure 6. Completed Project –sufficient flows of adequate depth, velocity and jump height were for pink salmon migration were routed around the cascades.

A**ugust 22**

I noted on the morning newscasts that the previous day's rainstorm had produced 3.12 inches of rain at Pacific Beach, but just 0.02 inches at Port Angeles. The Olympic rain shadow apparently had its effect. Ray called me that evening to report that although the river was up and a bit dirty from the small amount of rain that fell the previous night, he estimated thousands of pink salmon were now actively spawning above the blockage. He added that he had observed groups of 20 to 30 using the portal to bypass the cascade.

August 28

Ray reported that spawning ground surveyors estimated over 3,200 pink salmon above the cascade and about 7,300 below it. Many more were still moving upstream.

Figure 7. Crew at completion of Project

KUDOS to the crew: Lloyd Phinney, Brandon Phinney, Bob Zeigler, Dick Allen, Bill Freymond, Ray Johnson, Chad Stussy, Ken Gilliam, Randy Cooper, Mike Gross, Dave Nettnin, Don Ponder, Pad Smith and Ken Corwin.

Thanks also to the US Forest Service, the US Fish and Wildlife Service, the National Marine Fisheries Service, numerous WDFW staff who assisted in project development and permitting and to the Department of Ecology for providing emergency drought relief funding for the project.